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Sports Analytics

handbaloner package

- Development of a package with functions to draw a court, goal, pace plots from handball Play by Play data. Also, contains functions to scrape and transform data from PDF files containing Play by Play data. The package is available in the `handbaloner` repository.

Sports Data Campus 2021 University Diploma in Advanced Analytics in Handball

- Topics and ideas of the course were applied in two tasks and a final work. These are accesible (in spanish) through these links: [Task 1](#), [Task 2](#), [Final Work](#).
- Courses imparted mainly by Xavier Pascual, FC Barcelona trainer at the time, and Anselmo Ruiz Alarcón, sports data analyst.

Other developments

- Extraction, structuring and data opening of the play by play of the 2021 and 2023 World Men’s Handball Championship. Data and the code to generate it is freely available: [2021](#) and [2023](#).
- Creation of a Shiny app for the collection and a posterior analysis of the 7m shootings data for the Costa Rican Men’s National Handball Team. A version of this app can be seen here: [7 meters](#)

Personal Sports Experience

Costa Rican National Handball Team

March 2014 - Present

- Central American and Caribbean Games, 2018
- Torneo Centroamericano Masculino Mayor El Salvador 2019 - Gold
- Torneo Centroamericano Masculino Mayor Honduras 2021 - Gold
- Campeonato Sudamericano y Centroamericano de Balonmano Masculino 2022

Education

**Data ScienceTech Institute**, (2020 - Ongoing).  
Applied MSc in Data Science & Artificial Intelligence.

**Universidad de Costa Rica, Escuela de Matemática** (2013 - 2018).  
Bachelor of Science, Actuarial Science.

Professional Experience

ixpantia

Data Professional. Remote. August 2021 – Present

- Develop models for financial institutions, focusing on reproducibility and the best data science practices.
- Develop scripts to complete law changes for financial institutions.
- Help with the development of APIs to shift on-premise workflows to cloud
- Document APIs smoothly through automation.
- Simplifying and automation of workflows for API consumption.
- Deployment of basic workflows to cloud (Google Cloud Computing)
- Imparted intermediate and advanced R courses for financial institutions
- All this work done through a clean version control workflow and focusing on complete documentation.

Mastercard SJO Center of Excellence

Associate Consultant, Advanced Analytics.  
San José, Costa Rica. May 2019 – May 2022

- Delivery of advanced analytics products for several financial institutions across the continent, leveraging the hundreds of GB of transactional data the company holds. Some of the deliveries included fraud rules creation, customer behavioral segmentations, campaign performance diagnostics, product migration models, authorizations diagnostics and data quality assessments.
- Technical and methodological presentations of the projects for internal and external stakeholders mostly of non-technical profiles.
- Development of in-house R-packages. These fully documented packages allow to complete specific kind of projects from beginning to end, while also compiling functions for multiple purposes.
- Imparted multiple R trainings for the team (best practices, optimization, `data.table`, `purrr`).

Instituto Nacional de Seguros

Reserve Technician. San José, Costa Rica. January 2018 – April 2019

- Computation of benefit reserves process automation (migration from VBA& Excel to R) and interaction between Excel and R.
- Use of statistical models to project reserves and scenario simulations.

Research Center in Pure and Applied Mathematic (CIMPA for its acronym in Spanish) (UCR)

Investigation Assistant - Transit in the Great Metropolitan Area model study (Dr. Maikol Solís) San José, Costa Rica. March 2017 – January 2018

- Manipulation of data from cell phone connections to antennas
- Study and plotting of the movement of individuals

Academic Experience

Generalized Sentiment Scoring of Short Informal Text in Spanish

Natural Language Processing  
Developed in R, Aug 2016 - Jul 2017

- Fitting text sentiment scoring into a rigorous mathematical framework, we constructed a signed measure function and created a language-agnostic and category-agnostic text classification tool.

Flower Market Analysis Through Google Web Searches

Time Series Analysis  
Developed in R, Nov 2017 - Dec 2017

- Using basic time series analysis frameworks like ARIMA(p,q) models, we characterized the fluctuations and expected growth rate of the flower market based on time series analysis using web searches of the word “flower.”

Betting Strategy Evaluation of Online MLB Matches

Backtesting  
Developed in VBA, Jun 2016 - Jul 2016

- We simulated the performance of several betting strategies for an individual with no prior sports knowledge, based solely on information that can be subtracted from online betting websites. We developed and tested a modified Martingale strategy which provided a high chance of profit in any subset of the time interval studied.

Extracurricular Activities

Datalatam, 2021 \* Presentation “data.table for dplyr and tidyverse users”

[Video in spanish](#)

ConectaR, 2021

San José, Costa Rica  
February 2021

- **Short presentation** “Fast Group Statistics with data.table”

[Link to article in spanish](#)

ConectaR, 2019

San José, Costa Rica  
January 2019

- **Plenary Talk:** “How to migrate from Excel to R?”

Translator from VBA to R code

Automation of an Excel workflow into R

- **Poster:** “Supervised classification methods comparison using R.”

Technical Skills

- Experience in R development: package creation, parallelization and highly efficient code.
- Data visualization experience, mostly with ggplot2.
- Experience in Shiny apps development
- Solid Excel and VBA knowledge
- Solid Matlab knowledge
- Solid SQL knowledge
- Impala and Spark usage through R while also using direct SQL querying
- Deep Learning Model Creation with Tensorflow with Keras in R
- Basic Python knowledge

Languages

- Spanish: Native Speaker
- Russian: Fluent conversational
- English: Technical and business knowledge
- German: Advanced knowledge (C1). Abitur completed in german
- French: Basic (A1)